

2-45 REV 12-79



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POLYMER PRODUCTS DEPARTMENT
EXPERIMENTAL STATION

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Pral File
I.C.

AR226-1602

September 29, 1981

TO: DR. Y. L. POWER - PPD, Parkersburg

FROM: S. S. STAFFORD *S.S. Stafford*

ANALYSIS OF BLOOD SAMPLES FOR PERFLUOROOCTANOATE
(Job No. 810-578; PRAL Nos. 81-3918-3970; Notebook Nos. E22514, E26238)

As requested in your letter of 8/25/81 to L. J. Papa, the 53 blood samples submitted then have been analyzed for perfluorooctanoate (C_8) by the usual gas chromatographic method ES-567. Results and sample identification are given in the attached table.

Attachment
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Key Words:
Perfluorooctanoate
GC
Blood Analysis

There's a world of things we're doing something about

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EID713869

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TABLE I
CONCENTRATION OF PERFLUOROOCTANOATE IN BLOOD (a)

<u>Sample</u> <u>PRAL No.</u>	<u>Date Sampled</u>	<u>P.R.No.</u>	<u>Name</u>	<u>GC Analysis</u> <u>Date Analyzed</u>	<u>[C₈], ug F/g blood</u> <u>(b)</u>
81-3918	8/11/81	4109		9/10/81	0.17
81-3919	8/11/81	4227		9/10/81	0.075
81-3920	8/11/81	W.S.		9/10/81	0.092
81-3921	8/11/81	4177		9/10/81	0.21
81-3922	8/11/81	W.S.		9/15/81	0.026
81-3923	8/11/81	W.S.		9/11/81	0.093
81-3924	8/11/81	W.S.		9/11/81	0.23
81-3925	8/11/81	4449		9/11/81	0.042
81-3926	8/12/81	4631		9/11/81	0.12
81-3927	8/12/81	W.S.		9/11/81	0.086
81-3928	8/12/81	4151		8/31 & 9/1/81	0.98
81-3929	8/12/81	4316		9/14/81	0.78
81-3930	8/12/81	867		9/11/81	0.24
81-3931	8/12/81	W.S.		9/11/81	0.053
81-3932	8/12/81	4248		9/23/81	6.9
81-3933	8/12/81	W.S.		9/11 & 9/15/81	0.041
81-3934	8/12/81	4432		9/14/81	0.52
81-3935	8/12/81	4264		9/14/81	0.41
81-3936	8/12/81	916		9/14/81	0.34
81-3937	8/12/81	1898		9/14/81	0.092
81-3938	8/13/81	3562		9/14/81	0.79
81-3939	8/13/81	1743		8/31 & 9/1/81	1.2
81-3940	8/13/81	4549		9/14/81	0.92
81-3941	8/13/81	1792		9/15/81	0.33
81-3942	8/13/81	W.S.		8/31 & 9/1/81	2.6
81-3943	8/14/81	W.S.		9/16/81	1.1
81-3944	8/17/81	3204(d)		9/15/81	0.25
81-3945	8/17/81	4448		9/15/81	0.091
81-3946	8/17/81	4650		9/22/81	0.019
81-3947	8/18/81	4747		9/15/81	0.090
81-3948	8/18/81	4518		9/21/81	1.6
81-3949	8/18/81	3467		9/15/81	0.078
81-3950	8/18/81	W.S.		9/15/81	0.40
81-3951	8/18/81	W.S.		9/16/81	0.70

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TABLE I
CONCENTRATION OF PERFLUOROOCTANOATE IN BLOOD (a)

<u>Sample</u>	<u>P.R.A.L No.</u>	<u>Date Sampled</u>	<u>P.R.No.</u>	<u>Name</u>	<u>GC Analysis</u>	<u>Date Analyzed</u>	<u>[C₈], µg F/g blood</u>	(b)
	81-3952	8/18/81	W.S.			9/16/81	0.19	
	31-3953	8/19/81	4242			9/16/81	0.29	
	81-3954	8/19/81	4553			8/31 & 9/1/81	3.5	
	81-3955	8/19/81	4290			9/17/81	0.077	
	81-3956	8/19/81	3574			9/18/81	0.52	
	81-3957	8/20/81	W.S.			9/16/81	0.29	
	81-3958	8/20/81	4334			9/18/81	0.43	
	81-3959	8/20/81	1529			9/16/81	0.76	
	81-3960	8/21/81	4746			9/17/81	< 0.007	
	81-3961	8/21/81	3325			9/18/81	0.63	
	81-3962	8/21/81	4664			9/17/81	0.076	
	81-3963	8/24/81	4624			9/16/81	0.39	
	81-3964	8/24/81	4299			8/31 & 9/1/81	4.2	
	81-3965	8/24/81	4551			8/31 & 9/1/81	1.5	
	81-3966	8/24/81	W.S.			9/18/81	2.4	
	81-3967	8/24/81	4300			8/31 & 9/1/81	2.0	
	81-3968	8/24/81	3661			9/18/81	0.15	
	81-3969	8/24/81	4009			9/18/81	1.2	
	81-3970	8/24/81	W.S.			9/18/81	0.15	
	81-1461	4/7/81	4299			8/31 & 9/1/81	4.5(c)	

(a) Analysis as described in Lab Method ES-567 ("Determination of Perfluorooctanoic Acid in Blood, Gas Chromatographic Method", S. Stafford, 4/3/81), using the packed column GC analysis with perfluoro-n-octanoic acid as calibration standard.

(b) Although the analysis is specifically for perfluorooctanoate (acid or salts), concentrations are given in ppm fluorine for comparison with the results of total organic fluorine analyses. (ppm F = 0.688 x ppm perfluorooctanoic acid) Estimated uncertainty is $\pm 10\%$ relative standard deviation. The lower limit for quantitation is $0.007 \mu\text{gF/g}$. The detection limit is $\sim 0.004 \mu\text{gF/g}$, but concentrations in that range cannot be well quantitated and are reported as < 0.007 . None detected (n.d.) is reported for samples with $[\text{C}_8] < 0.004 \text{ ppm}$, which cannot be distinguished from reagent background.

(c) Previously analyzed sample, reanalyzed for comparison with repeat sample 81-3964; result of the initial analysis (4/24/81) was 4.5.

(d) P.R. Number given as 3240 on the sample tube.

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